



Cumbres/Toltec Railroad - Sandia

Elected Officials Briefing

8/31/2005

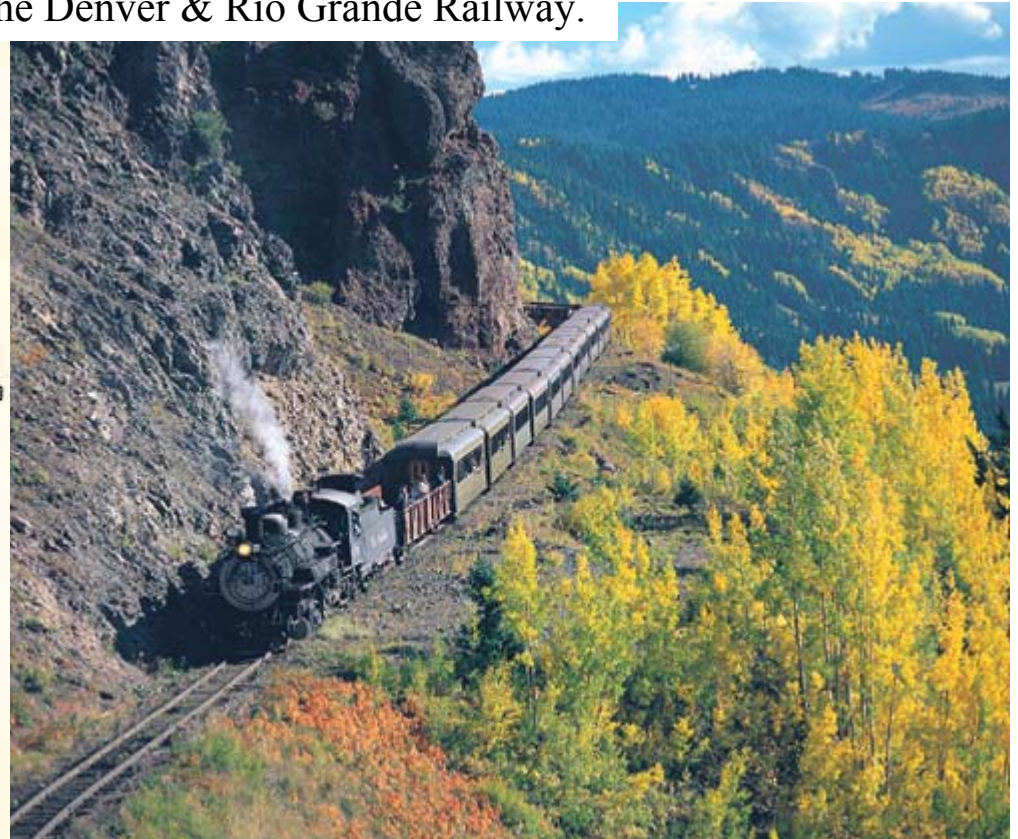
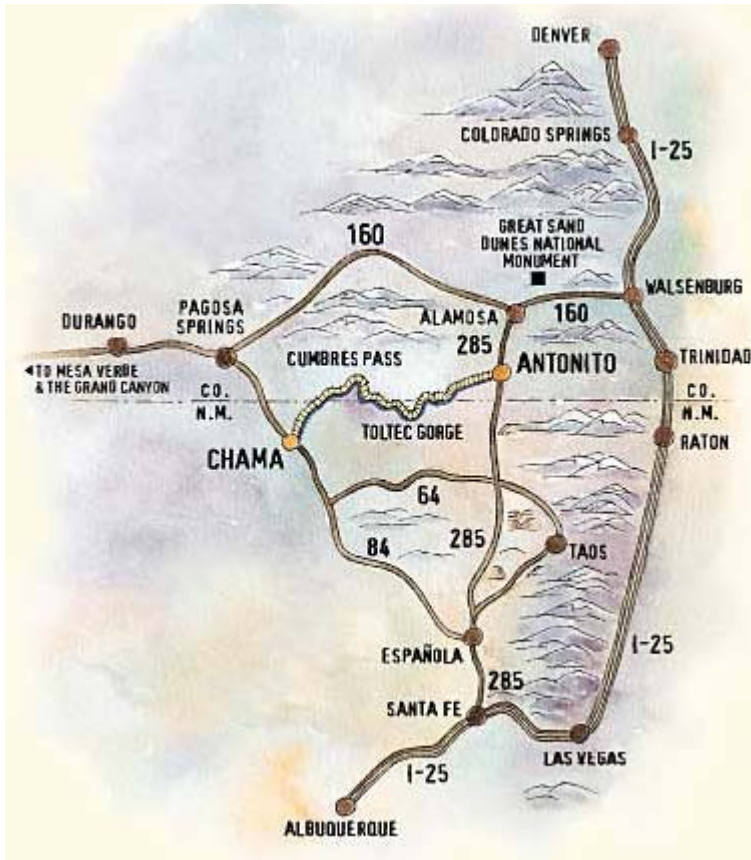
**Ted Borek
Staff Member, Sandia**

**Kim Smith
General Manager, C&TS**



Cumbres & Toltec Scenic Railroad

The C&TS was originally built in 1880 by the Denver & Rio Grande Railway.



West bound train at Windy Point, from CTRR website

Cumbres & Toltec Scenic Railroad

- The Cumbres & Toltec Scenic Railroad is jointly owned by the states of Colorado and New Mexico.
- The railroad is managed for the states by the Cumbres & Toltec Scenic Railroad Commission, an interstate agency authorized by the Cumbres & Toltec Scenic Railroad Compact, an act approved by Congress on October 24, 1974.



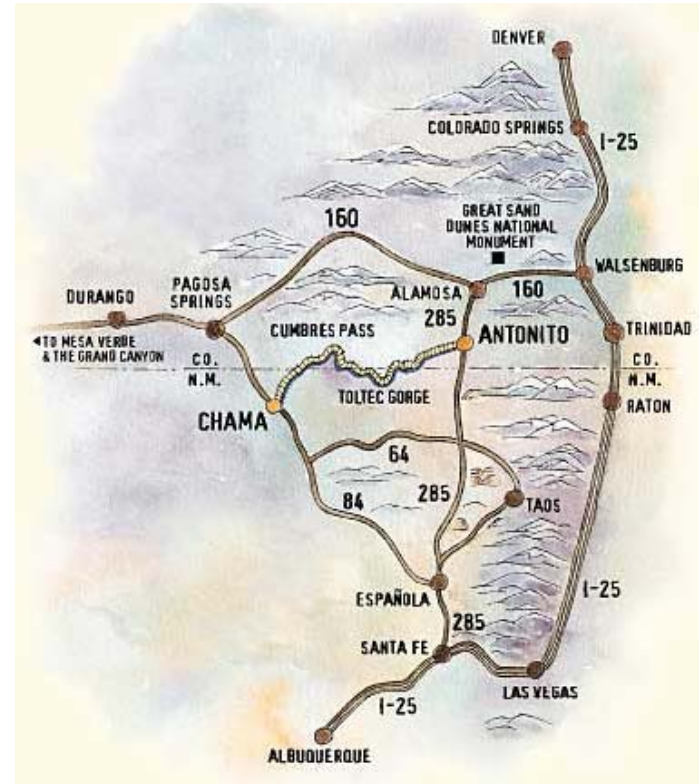


CTRR Economic Impact on Chama Valley

- **Season is from Memorial Day to Mid-October**
- **Estimated \$21 million input to local economy.**
 - **Directly employs 60 individuals**
 - **Tourist trade supports local hotels, restaurants, grocery stores, gas stations, gift shops, real estate offices, etc.**
 - ***Need 2 locomotives to operate.***

C&TS Comparison with other regional Excursion Railroads

- Cumbres & Toltec is exclusively steam, and is 64 miles one way.
 - *C&TS has the largest remaining collection of narrow gauge freight cars left in the US.*
- Durango & Silverton is 45 miles one way, utilizes steam and diesel motive power.
- Georgetown Loop is 6.5 miles round trip, steam and diesel.
- Royal Gorge is 24 miles steam and diesel
- Santa Fe Southern is 36 miles round trip, diesel only.



K37 Class Locomotive

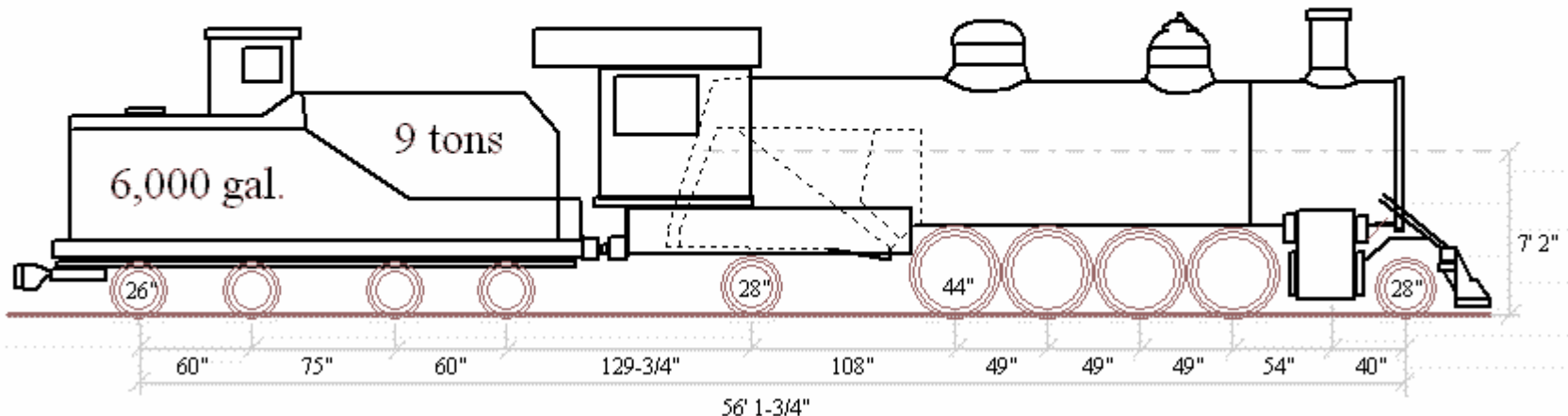
K37 Class Locomotive

Tractive Power: 37,100 lbs.

Stroke: 24"

Cylinder: 20"

Boiler O.D.: 74"

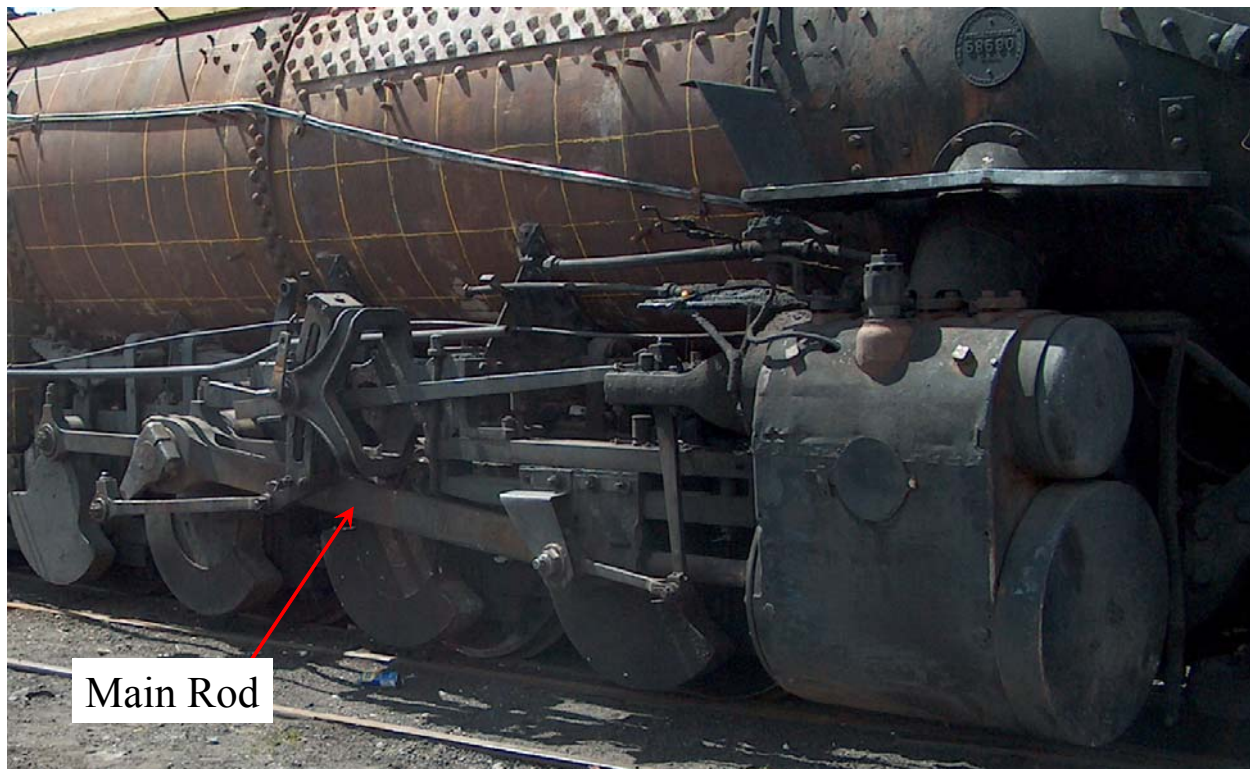


- Engine 484, Built in 1925; needs repair and refurbishment.
- Prior to any welding work, the Federal Railroad Administration requires a data package that includes metal composition.

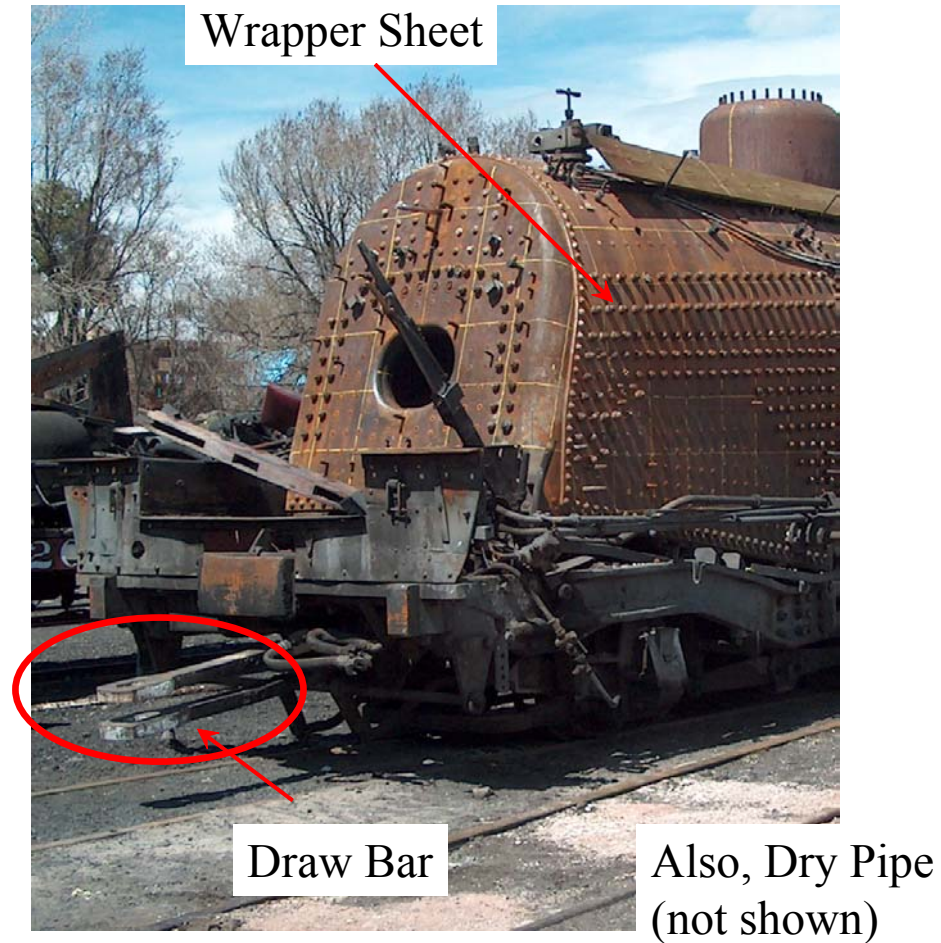
Locomotive 489



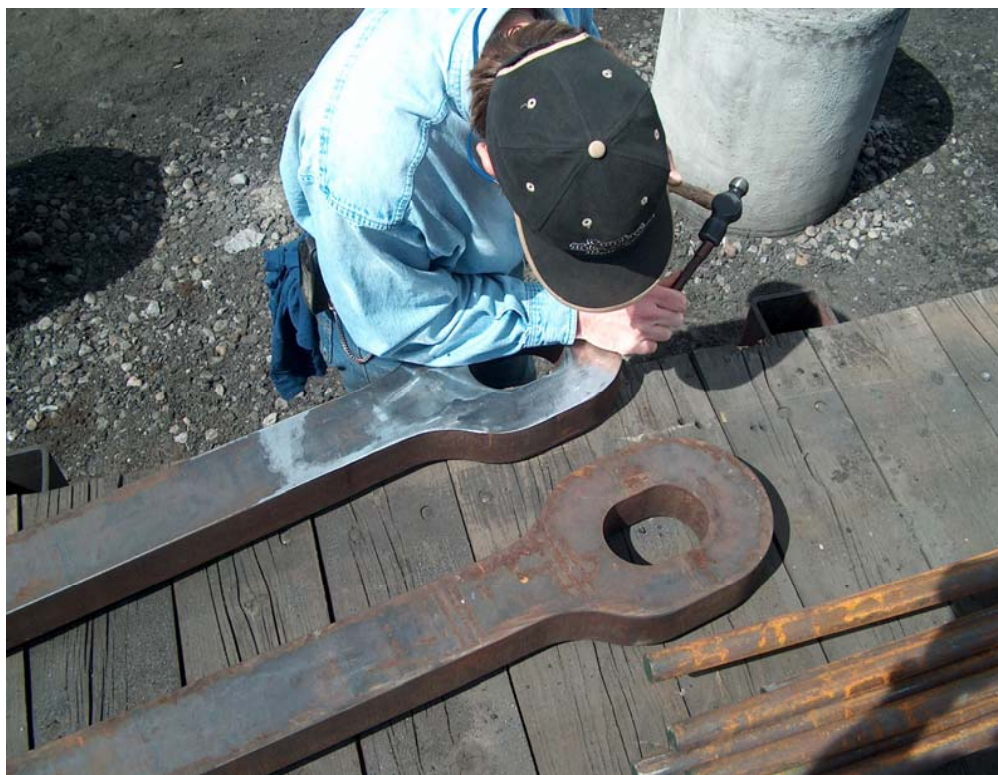
Locomotive 489



Locomotive 489



Draw Bar Sampling



Composition



Hardness

Drive Rod Sampling

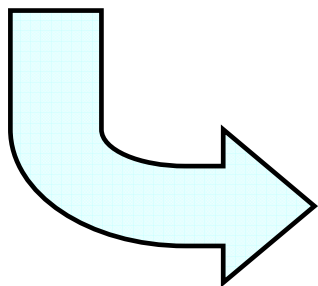


Inorganic Sample Preparation and Analysis

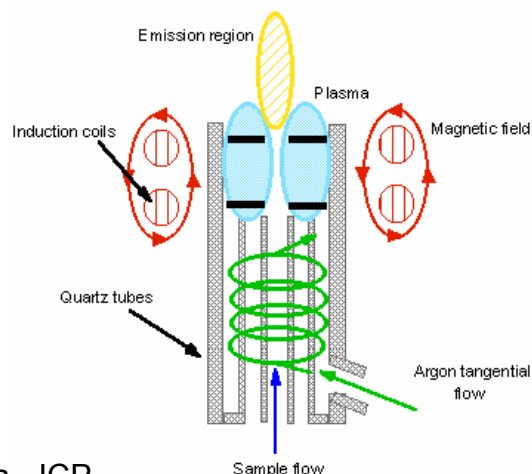
Low Temperature Digestions and Extractions



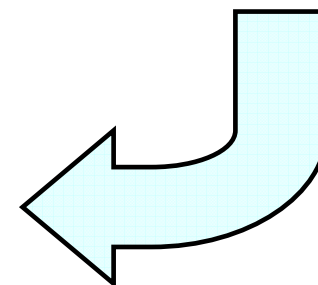
Microwave-Assisted Digestion and Extraction



Inductively Coupled Plasma - ICP



High Temperature Fusions



Benefit to CTRR

- Materials were determined to be carbon steels.
- Submitted data package to FRA, reviewed and approved.
- Welding performed and repairs completed.
- Locomotive available for CY2004 Season.



Benefit to Sandia

SANDIA TECHNOLOGY

Small business assistance

Sandia working for New Mexico

The Cumbres & Toltec narrow gauge steam railroad remains a major tourist attraction long after its working life would otherwise be over. Sandia is helping bring high-tech solutions to some turn-of-the-20th-century problems. (Photo by Randy Montoya)



Now in its third year of providing technical assistance to New Mexico small businesses, Sandia has provided nearly 300 small businesses with assistance through a tax credit arrangement approved by the New Mexico Legislature.

Assistance has ranged widely in terms of technological challenges, from helping a company make better spark plugs to aiding in the automation of the New Mexico chile industry. Researchers from the Labs have visited and assisted small businesses throughout the state.

The Small Business Assistance program allows Sandia to use a portion of the gross receipts taxes it pays each year to provide technical advice and assistance to small businesses in the state. During 2003, Sandia received \$1,796,000 in tax credits. Two-thirds of the work was aimed at small businesses in rural New Mexico

and the balance went to assist small businesses in Bernalillo County, where the Labs headquarters are located.

"Assistance helps small businesses move forward through issues and helps them get their products or services into the market," said Mariann Johnston of the program. By mid-2004, this year's program was fully allocated, with other businesses on a waiting list, she said.

Driving rods

In response to a request from New Mexico officials, researchers Ted Borek and Don Susan traveled to Chama, in northern New Mexico, to help with an important project this spring. "The railroad isn't permitted to weld on trains unless the welders know the composition of the metals," explained Borek. With 10

- Able to assist our fellow citizens.
- Acknowledgement by highest offices in State Government.
- Demonstration of our ability to analyze historical samples.

